CLOSER Conference

Neighbourhood 2

Chair: **Kate Northstone**

- The role of the neighbourhood on young people happiness, self-perception and social interactions.
  Franco Bonomi Bezzo
- Diversity and Neighbourhood Satisfaction
  Monica Langella
- Outdoor air pollution and emotional and behavioural problems in early childhood
  Emily Midouhas
- Promoting mental well being in the ageing urban population: determinants, interventions and policies in European cities (MINDMAP)
  Frank Van Lenthe

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The role of the neighbourhood on young people's happiness and attitudes.

Franco Bonomi Bezzo

Institute for Social and Economic Research (ISER)
University of Essex

CLOSER Conference, 2017

Outline

1. Research Question
   - Neighbourhood Effect?
   - Previous Work
2. Theoretical Model and Methodology
   - Neighbourhood Channels
   - Social Housing
3. Data & Descriptive Statistics
   - Data
   - Descriptive Statistics
4. Empirical findings
5. Summary

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Why do we care about neighbourhood effect?

- Does the place where a person live affect his life?
- The friends you have, their parents, the school you attend, the infrastructure and public services. Do they matter?
- Is it possible to distinguish between family and neighbourhood effect?
- Relative deprivation hypothesis: is it more important absolute income or relative income compared to your neighbours? Does the comparison with the neighbours have a any negative effect on life satisfaction?

Previous Works:

- Patacchini & Zenou, (2011)
  - Analysis of the interplay between family and neighbourhood.
  - The family matters for children with highly educated parents while it is the community that is crucial for the educational achievement of children from low-educated families.
- Chetty & Hendren, (2016)
  - Growing up in a one SD better county from birth increases a child's income by approximately 10%.
- Knies et al., (2008)
  - Relative deprivation: there is not a significantly negative association between neighbourhood income and life satisfaction. If there is any association, it is a positive one.
  - The scale at which measuring this effect may be highly relevant.
- Nieuwenhuis et al., (2016)
  - For adolescents, moving to a more affluent neighbourhood is related to increased levels of depression, social phobia, aggression.
  - Relative deprivation: children suffering from the comparison between themselves and the other people of the relevant group they confront with every day.

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Three interrelated channels through which the neighbourhood may play a role:

1. peer, i.e. behaviours and attitudes of the people of your age you meet everyday;

2. inspirational, i.e. behaviours and attitudes of older people you see and get in touch with on daily basis;

3. opportunity, i.e. services and infrastructure, geographical distance, access to information, difference exposure to “risk”.

Neighbourhood definition

- Neighbourhood can be identified in many ways and at different levels, i.e. street level, ward level…

- In this paper I use Lower Layer Super Output Areas (LSOAS), in which on average live 3000 people. England is divided in 32,482 LSOAS.

Social housing

- Social housing is a good form of residential randomization.
- Until the early 2000 two complementary criteria:
  - first on a need base criterion;
  - second on the waiting time.
- Constant decline in the weight given to patience to wait in favour of more defined needs based criteria.
- After the introduction of the Right to Buy (1984), severe decline in the dispersion of social houses.
- Extremely limited possibility of refusing, for this reason it is still a reasonably good way of residential randomization.

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Understanding Society (UKHLS)

- Youth questionnaire from waves 1 to 6, from 2009 to 2016, merged with adult questionnaires for parental and household controls.

- Young people (below age 15) residents in England and living in households of UKHLS sample members are interviewed each wave with a separate questionnaire, not disclosed to parents, about their life perception, happiness, behaviours.

Sample Selection

- Young people living in social housing: council houses or housing association houses.
- Living in the same place since at least 5 years to avoid residential selection and to allow for an adequate exposure time.
- Aged 13-15, who are more exposed and permeable to other people behaviours (Piaget, 1965) and have greater awareness of their social position (Rosemberger & Pearlin, 1978).
- 1846 observations.

Outcomes

- Happiness & Self-Perception
  - Having a Bad Life
  - Being Unhappy
  - Having Low Self-Esteem
- Social Interactions with Parents
  - Quarrelling with Parents
  - Not Talking with Parents
- Social Interactions with Peers
  - Being Bullied by Other Children
  - Not Being Liked by Others

Index of Multiple Deprivation (IMD)

- IMD from the 2015 census at LSOAS 2011 level.

- 9 domains: Income (.225), Employment (.225), Education Skills and Training (.135), Health and Disability (.135), Crime (.93), Barriers to Housing and Services (.93), Living Environment (.93).
- In addition an extra index: Income Deprivation Affecting Children Index (IDACI).
- The IDACI is the proportion of all children 0-15 living in income deprived families.
- In our empirical analysis are used standardised scores. The more deprived is an area, the higher is the score.
- A positive value of the deprivation variable should suggest that living in a more deprived neighbourhood has an increasing effect on the dependent variable.

Controls

- Household and Parents
  - ➢Household Monthly Real Income
  - ➢Household Size, Household Structure and Presence of Other Children in the Household
  - ➢Maternal Ethnicity, Maternal Education and Maternal Employment Status
- Individual Level
  - ➢Age
  - ➢Gender

Finally, I cluster at LSOA level instead of at individual level to avoid within-cluster correlation biases at the treatment level.

Outcomes of Interest, Difference Empirical Sample and Entire Sample

	Entire Sample, 13-15			Empirical Sample, 13-15 in Social Housing	
	%	Obs.		%	Obs.
Having a Bad Life	12.7	9,983		17.7	1,822
Being Unhappy	25.0	5,137		28.2	900
Having Low Self-Esteem	28.8	4,794		30.6	915
Quarreling with Parents	52.6	5,065		50.6	885
Not Talking with Parents	41.9	5,101		41.0	890
Being Bullied by Peers	14.8	5,134		16.1	901
Not Being Liked by Peers	3.5	5,133		5.1	900

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Results (1),
Being Sad About Life (1), Being Unhappy (2), Having Low Self-Esteem (3)

	IDACI			INCOME		
	1	2	3		1	2
Female	0.075***	0.160***	0.143***	0.075***	0.160***	0.143***
	(0.020)	(0.030)	(0.031)	(0.020)	(0.030)	(0.031)
Thirteen	-0.020	-0.019	-0.027	-0.020	-0.020	-0.027
	(0.023)	(0.036)	(0.036)	(0.023)	(0.036)	(0.036)
Fourteen	0.028	0.045	-0.049	0.028	0.045	-0.049
	(0.020)	(0.036)	(0.038)	(0.020)	(0.036)	(0.038)
White Mother	0.049**	0.079**	0.007	0.049**	0.077**	0.005
	(0.023)	(0.035)	(0.036)	(0.023)	(0.036)	(0.036)
Equivalised HH Income	0.016	0.015	0.116**	0.016	0.013	0.111**
	(0.022)	(0.032)	(0.045)	(0.022)	(0.032)	(0.046)
HH Size	0.003	-0.012	-0.048***	0.004	-0.012	-0.048***
	(0.009)	(0.014)	(0.018)	(0.009)	(0.014)	(0.018)
One-Parent HH	0.042*	0.053	-0.029	0.042*	0.053	-0.029
	(0.024)	(0.039)	(0.045)	(0.024)	(0.039)	(0.045)
Living in Urban Context	-0.034	-0.082	-0.020	-0.035	-0.074	-0.012
	(0.038)	(0.052)	(0.055)	(0.037)	(0.051)	(0.055)
IDACI	-0.003	-0.004	-0.014			
	(0.011)	(0.019)	(0.017)			
Income Deprivation				-0.003	-0.010	-0.021
				(0.011)	(0.019)	(0.018)
Wave Fixed Effec	YES	YES	YES	YES	YES	YES
Family Controls	YES	YES	YES	YES	YES	YES
Obs.	1,772	888	904	1,772	888	904

Results (2), Quarreling with Mom (4), Not Talking with Mom (5)

	IDACI		INCOME	
	4	5	4	5
Female	0.033	-0.099***	0.033	-0.099***
	(0.034)	(0.034)	(0.034)	(0.034)
Thirteen	-0.100**	-0.089**	-0.098**	-0.088**
	(0.039)	(0.038)	(0.040)	(0.038)
Fourteen	-0.011	0.049	-0.011	0.050
	(0.043)	(0.040)	(0.043)	(0.040)
White Mother	0.037	0.046	0.040	0.049
	(0.039)	(0.039)	(0.039)	(0.039)
Equivalised HH Income	0.012	0.001	0.015	0.003
	(0.041)	(0.040)	(0.042)	(0.040)
HH Size	-0.039**	0.018	-0.040**	0.017
	(0.016)	(0.019)	(0.016)	(0.019)
One-Parent HH	0.091**	0.082*	0.090**	0.081*
	(0.046)	(0.047)	(0.046)	(0.047)
Living in Urban Context	-0.075	-0.069	-0.086	-0.083
	(0.065)	(0.065)	(0.065)	(0.064)
IDACI	0.011	-0.004		
	(0.020)	(0.021)		
Income Deprivation			0.021	0.007
			(0.021)	(0.021)
Wave Fixed Effec	YES	YES	YES	YES
Family Controls	YES	YES	YES	YES
Obs.	874	879	874	879

Results (3), Being Bullied by Peers (6), Not Being Liked by Peers (7)

	IDACI		INCOME	
	6	7	6	7
Female	-0.032	-0.006	-0.031	-0.006
	(0.025)	(0.015)	(0.025)	(0.015)
Thirteen	0.105***	0.004	0.106***	0.005
	(0.028)	(0.018)	(0.028)	(0.018)
Fourteen	0.049	0.011	0.049	0.011
	(0.031)	(0.018)	(0.031)	(0.018)
White Mother	0.122***	0.029	0.123***	0.031
	(0.033)	(0.019)	(0.033)	(0.019)
Equivalised HH Income	0.014	0.000	0.016	0.001
	(0.033)	(0.018)	(0.033)	(0.018)
HH Size	-0.016	-0.010	-0.016	-0.011
	(0.012)	(0.007)	(0.012)	(0.008)
One-Parent HH	-0.036	-0.009	-0.036	-0.007
	(0.036)	(0.020)	(0.036)	(0.021)
Living in Urban Context	-0.081*	-0.048	-0.082*	-0.039
	(0.044)	(0.030)	(0.044)	(0.030)
IDACI	0.036**	0.037***		
	(0.015)	(0.011)		
Income Deprivation			0.038**	0.032***
			(0.015)	(0.011)
Wave Fixed Effec	YES	YES	YES	YES
Family Controls	YES	YES	YES	YES
Obs.	889	888	889	888

Alternative Approaches and Robustness Checks

- Other Underlying Mechanisms
  - Barriers to Housing and Services
  - Living Environment
- Active Bullying
- Non Linear Effects
- Wider Samples

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Summary and Conclusion (1)

- No supporting evidence for the relative deprivation hypothesis according to which people surrounded by richer neighbours are less happy because they compare themselves with people who are better off.

- Children living in less deprived neighbourhood are less likely to be bullied by their peers and feel more appreciated by them.

- Allowing young children to live in better neighbourhoods seem to provide some positive effects on the interactions with their peers even if does not directly affect happiness and self-perception.

Outlook

- Does the school neighbourhood play any role?
- Which is the direction?
- Is it more relevant the direction or the size?


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Thank you!


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Income Domain

The income domain capture: adults and children in income support families, adults and children in income-based jobseeker's allowance families, adults and children in income-based employment and support allowance families, adults and children in pension credit (guarantee) families, asylum seekers in England in receipt of subsistence support, accommodation support, or both, adults and children in working tax credit and child tax credit not already counted in previous categories and whose equivalised income is below 60% of the median before housing costs.

Neighbourhood scale

Scale	Predominant function	Mechanism(s)
Home area	Psycho-social benefits (for example, identity; belonging)	Familiarity Community
Locality	Residential activities Social status and position	Planning Service provision Housing market
Urban district or region	Landscape of social and economic opportunities	Employment connections Leisure interests Social networks

Source: Kearns & Parkinson (2001)

Equivalised HH income (£) by tenure

Housing Tenure	Mean	Sdandard Deviation	Frequency
Owned outright	1,432	1,082	1,972
Owned with mortgage	1,566	894	10,947
Rented From Local Authority	**961**	**430**	**2,614**
Rented from Housing Association	**1,032**	**435**	**2,044**
Rented from employer	1,296	667	171
Privantely Rented Unfurnished	1,218	648	1,686
Privately Rented Ufurnished	1,113	488	468
Other	988	432	140
Total	1,375	838	20,042

Neighbourhood Deprivation by Housing Tenure

Housing Tenure	IMD (Rank)	Standard Deviation	Frequency
Owned outright	16,791	9,644	1,972
Owned with mortgage	18,280	9,339	10,947
Rented From Local Authority	**7,548**	**6,606**	**2,614**
Rented from Housing Association	**9,753**	**8,037**	**2,044**
Rented from employer	15,087	9,119	171
Privantely Rented Unfurnished	14,017	9,502	1,686
Privately Rented Ufurnished	11,737	7,945	468
Other	9,155	7,138	140
Total	15,299	9,770	20,042

Diversity and Neighbourhood Satisfaction

Monica Langella and Alan Manning

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UCL Closer Conference

What do we do and what we find

- Higher white share of population (lower diversity) raises neighbourhood satisfaction
  - Fall in the white share of 5.7 pp - from 1991 to 2011 - led to a rise in fraction not liking neighbourhood of 1.4 pp (sample mean: 7.5 pp)

- Closer attention to causality using panel dimension of the data, IV, and controls for sample selection

- Attention to other outcomes
  - Generalised trust/social capital - no significant link
  - Fear of crime - higher white share associated with lower crime concern
  - Perceived quality of local services - no clear impact
  - Perceived quality of social life - no clear impact

Data

- Individual longitudinal data from two surveys
  - British Household Panel (BHPS): 18 waves from 1991 to 2008
  - Understanding Society (UKHLS): 2009-2013 (includes BHPS panel from 2010)
- Information on
  - individual characteristics
  - individual attitudes and behaviour
- Geocoded version of the datasets that allows to link with small area characteristics from Census (1991, 2001, 2011)
- Refer to ’Lower Super Output Areas’ as ’neighbourhood’ (1,400 people on avg)

Measuring Diversity

- One could think to many different ways of measuring diversity
- We explored a variety of measures, all highly collinear
- Main analysis: White share

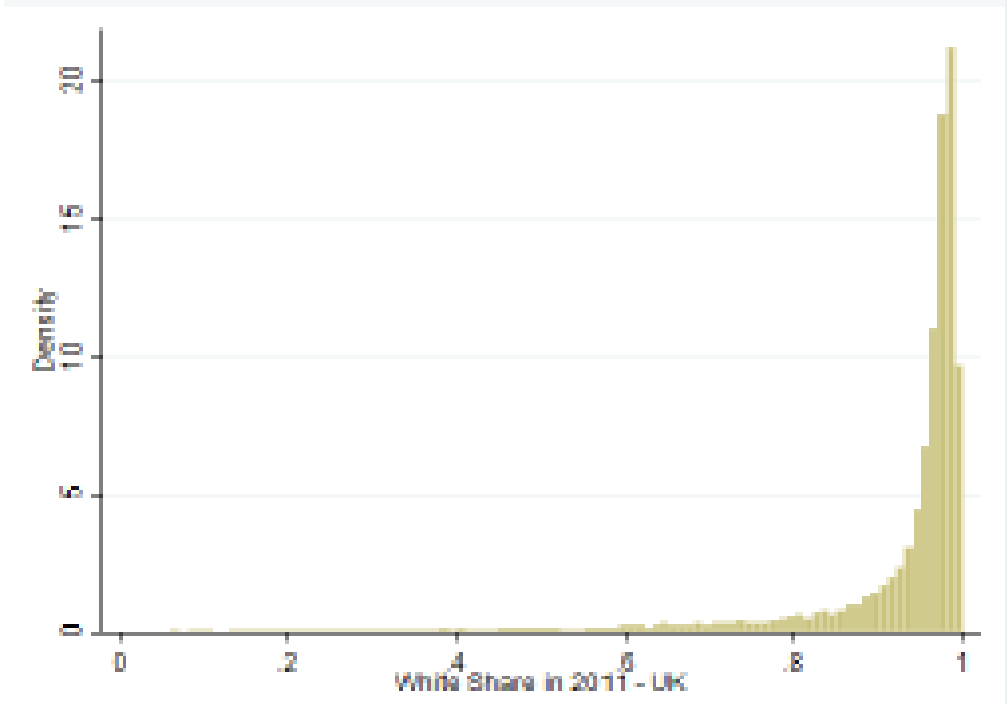
	White share	Ethnic F- index	Immigrant F- index	Black share	Immigrant share	Asian share	Muslim share	Unempl. rate
White share	1							
Ethnic F-index	-0.958*	1						
Immigrant F-index	-0.809*	0.853*	1					
Black share	-0.727*	0.771*	0.653*	1				
Immigrant share	-0.839*	0.847*	0.977*	0.658*	1			
Asian share	-0.900*	0.800*	0.641*	0.382*	0.683*	1		
Muslim share	-0.832*	0.728*	0.597*	0.420*	0.633*	0.870*	1	
Unemployment rate	-0.147*	0.147*	0.018*	0.193*	0.027*	0.107*	0.139*	1

Distribution of the White Share

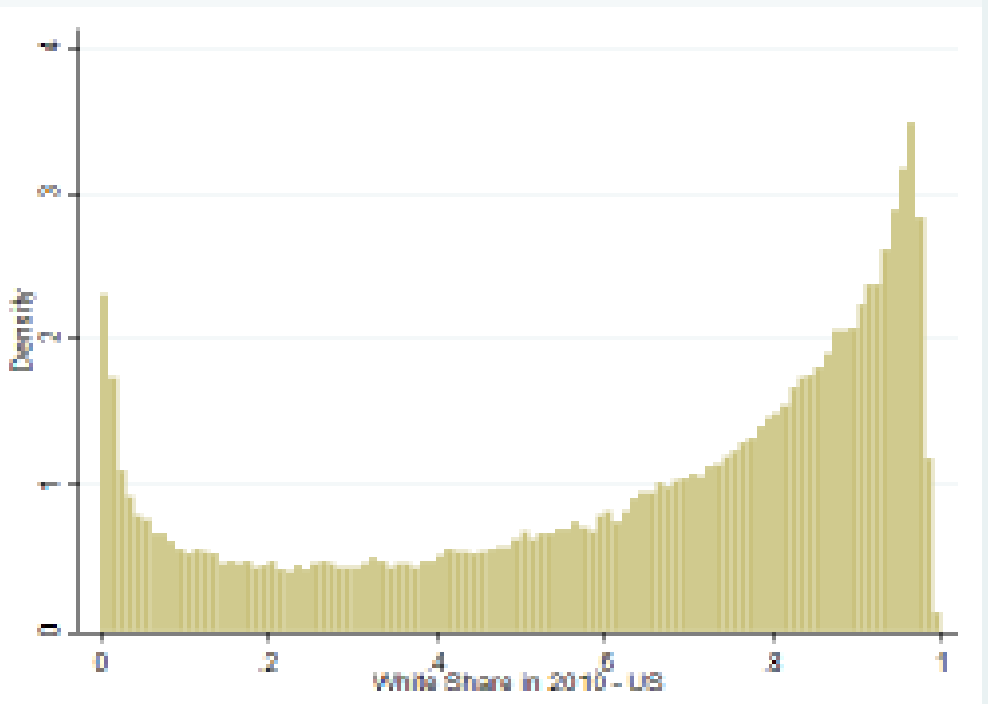
	1991	2001	2011
Share of white people			
Less than 10%	0.004	0.001	0.003
10% to 25%	0.001	0.006	0.012
25% to 50%	0.010	0.024	0.043
50% to 75%	0.045	0.061	0.084
75% to 90%	0.090	0.105	0.143
90% to 95%	0.076	0.128	0.137
Above 95%	0.774	0.675	0.576
Mean	0.943	0.920	0.886
Median	0.987	0.973	0.963
N		40,880	

Comparison with the US

Panel A. UK, 2011, Census Wards



Panel B. US, 2010, Census Tracts



Notes: Authors' elaboration of UK Census Data (2011), and US Census Data (2010).

Empirical Specification

- Our basic model
  - $y_{it} = \beta_1 WS_{int} + \beta_2 X_{int} + \epsilon_{int}$

- Where
  - W_{int} is the white share of *i*'s neighbourhood *n* at time *t* (interpolated for inter-censual years)
  - X_{int} is a set of individual and area level characteristics
- Empirical issues
  - Levels or differences of *WS*? > *We'll estimate both*
  - Endogeneity of WS > Different sets of Fixed Effects + *Use IV*
  - Initial choice of the neighbourhood potentially endogenous > *Use sample selection controls*

IV

- Card (1991)
  - Take the ethnic mix in each area in a baseline year (1991)
  - Assume the groups grow at the national growth rate
  - Compute the predicted share every year
    - $\widehat{WS_{nt}} = \frac{s_{gn0}\log\left(\frac{s_{gt}}{s_{g0}}\right)}{\sum_{g\prime} s_{g\prime n0}\log\left(\frac{s_{g\prime t}}{s_{g\prime 0}}\right)}$

- The First Stage always quite strong
- Control for the initial ethnic mix in specifications with no area fixed effects

Sample Selection - Intuition

- Neighbourhood satisfaction depends on the level of the WS
- The choice of the neighbourhood depends also on the levels of WS among neighbourhoods you might choose
- Control for
  - $\sum_{j \neq n(i)} \omega_{nj}(WS_j - WS_{n(i)})$
  - Where $\omega_{nj} = \frac{e^{-0.04 d_{nj}}}{\sum_{j \neq n(i)} e^{-0.04 d_{nj}}}$
- In practice, we do not find sample selection terms to be significant but their inclusion raise standard errors on main effects

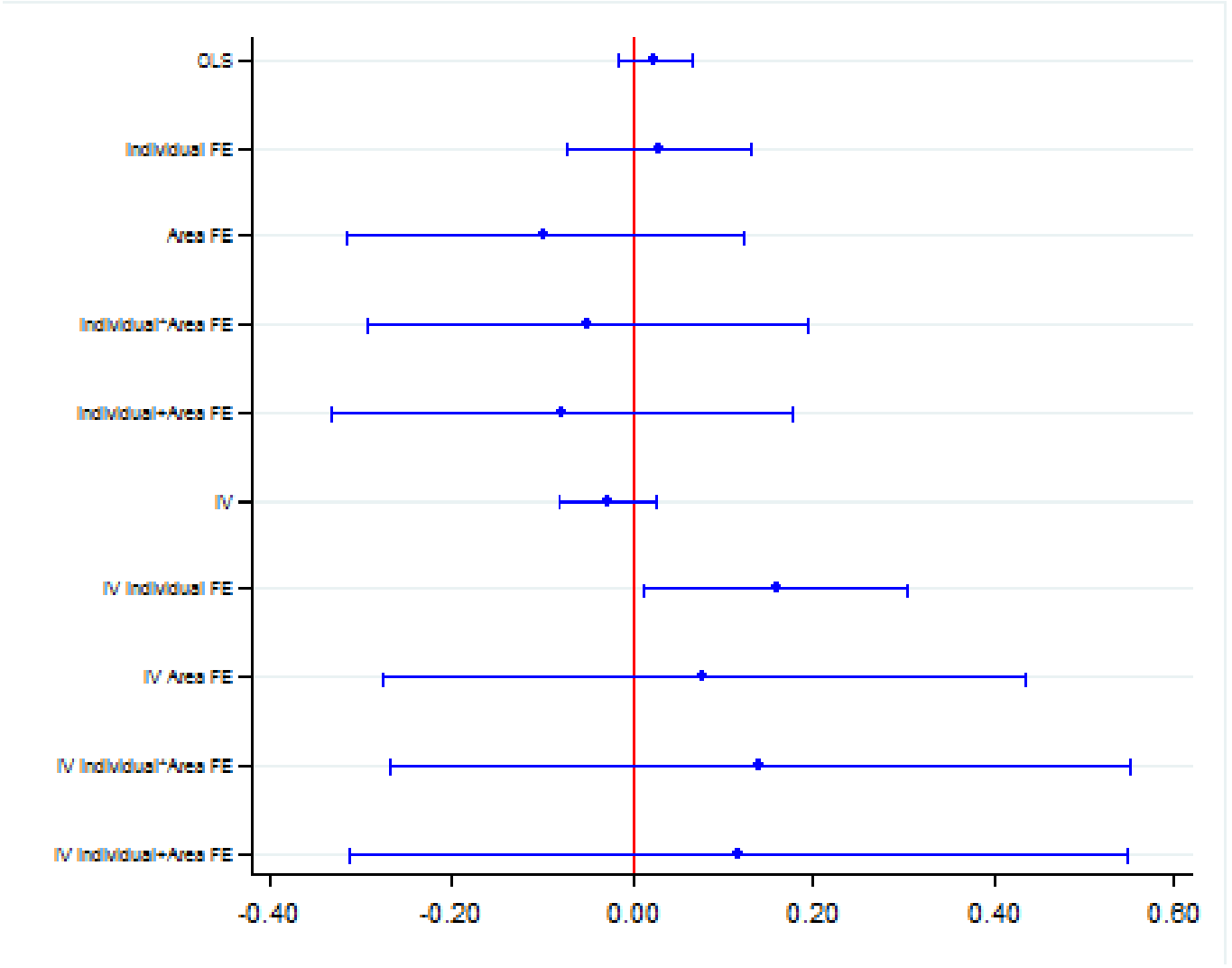
Results

	Sample selection				
	(1) No FE	(2) Individual FE	(3) Area FE	(4) Individual* Area FE	(5) Individual+ Area FE
A. OLS					
White share	0.170***	0.364***	0.056	0.217***	0.235***
	(0.030)	(0.061)	(0.073)	(0.070)	(0.070)
N	233,548	200,344	229,637	192,296	198,698
B. IV					
White share	0.080**	0.234***	0.045	0.196**	0.229**
	(0.040)	(0.088)	(0.093)	(0.090)	(0.090)
N	231,649	198,590	227,761	190,669	196,957
KP	405.313	1162.229	107.076	235.197	245.486

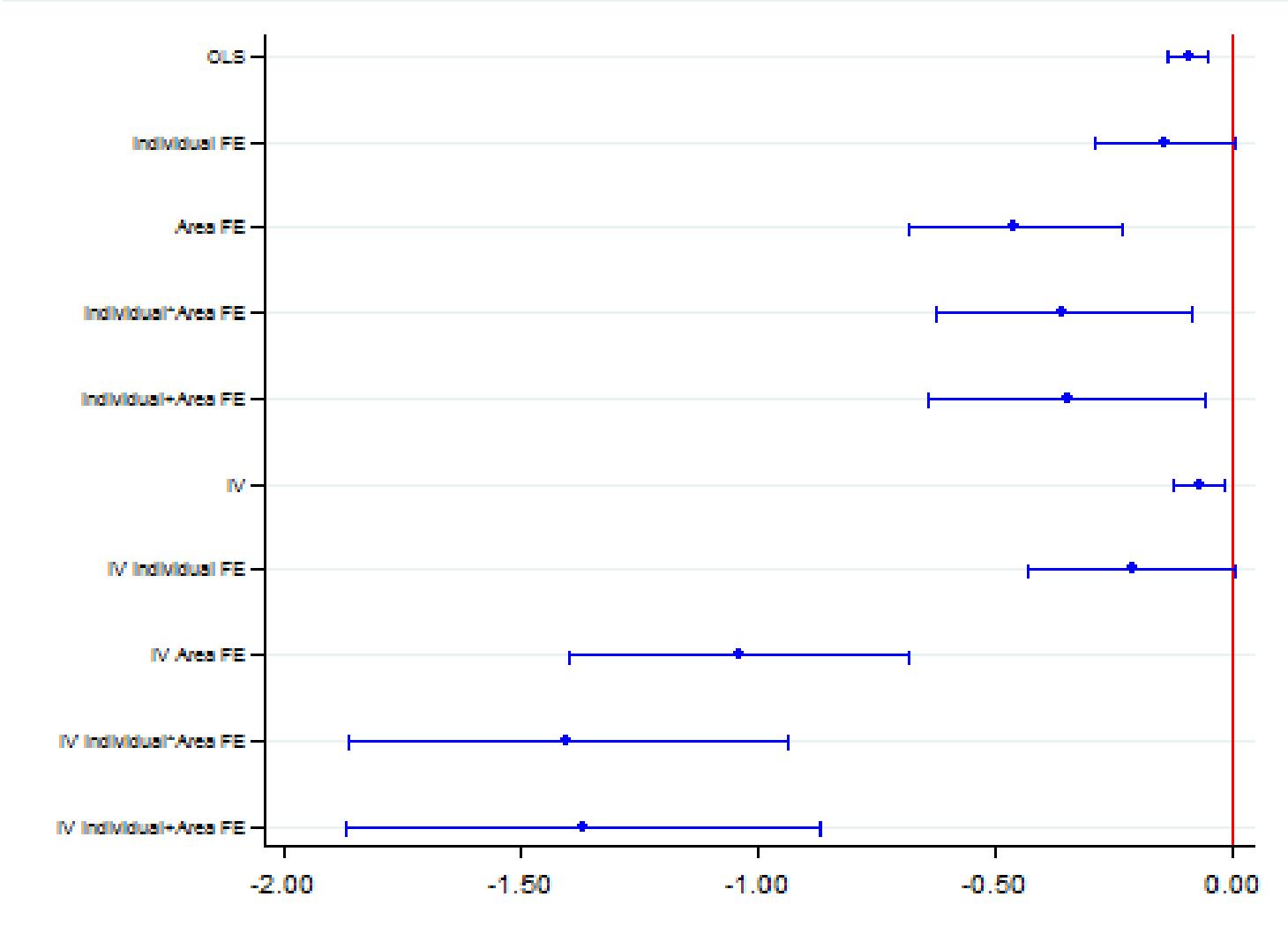
Remarks

- We use alternative definitions of diversity obtaining similar results
- We analyse the heterogeneity of the results with respect to a set of individual characteristics
  - We find that people with HE degree are almost insensitive to WS levels, while older people seem to care more about it
- Different robustness checks include keeping only census years, running the analysis on different area definitions, etc.
- First differences analysis suggest that the effect is likely to be higher for people who move and there seem to be some effect of the change in WS in the area that people left

Other Outcomes - Generalised Trust



Other Outcomes – Fear of Crime



Conclusions

- Increased white share is associated with a significant improvement in neighbourhood satisfaction (in our mostly white sample)
- This effect is lower for graduates
- No robust significant effect on generalised trust (contra existing literature)
- Significant effect on ’fear of crime’ (Note: not actual crime)
- Perhaps the effect is not surprising - people care about neighbourhood but can’t control it - classic recipe for stress
- Important question to address - Is it possible to mediate this?

Outdoor air pollution and emotional and behavioural problems in early childhood

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This research was supported by a Seed grant from the UCL IOE.

Background

- Air pollution has been associated with mortality risk (Royal College of Physicians, 2016) and a number of adverse respiratory and cardiovascular health outcomes in UK adults and children (Guarnieri & Balmes, 2014; Schwartz et al., 2005)

- This is largely due to toxins emitted by diesel engines such as nitrogen dioxide (NO_2) and particulate matter (e.g., PM2.5 and PM10)

- Identifying air pollution effects has important implications for UK transport policy


London breaches annual air pollution limit for 2017 in just five days

Brixton Road in Lambeth has already broken legal limits for toxic air for the entire year, with many other sites across the capital set to follow

Air pollution and traffic on Putney High Street on 3 January 2017, one of London's worst pollution hotspots. Photograph: Elizabeth Dalziel/Greenpeace


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Science & Environment

Court orders UK to cut NO2 air pollution

By Paul Rincon
Science editor, BBC News website

29 April 2015 Science & Environment Share

Yet little research has explored its association with early childhood mental health:

- Black carbon linked to behavioural problems (Harris et al., 2016; Newman et al., 2013)

- NO_2 and particulate matter linked to rates of psychiatric medication dispensing (Oudin et al., 2016)

•NO_2 predicted ADHD diagnosis in children (Min & Min, 2017)

Theory: Air pollution and mental health

Gaps the study aims to address

1. Exploration of air pollution associations with early child emotional/behavioural problems in the general population

2. Examination of whether the relationship is dose-response or not, assuming air pollution is unsafe at all levels (Lanphear, 2015)

3. No study has accounted for the indoor air quality of children's homes or the amount of green space in their neighbourhood

Data: Millennium Cohort Study (MCS)

- Longitudinal study following the lives of around 19,000 children born in four UK countries in 2000-2002.

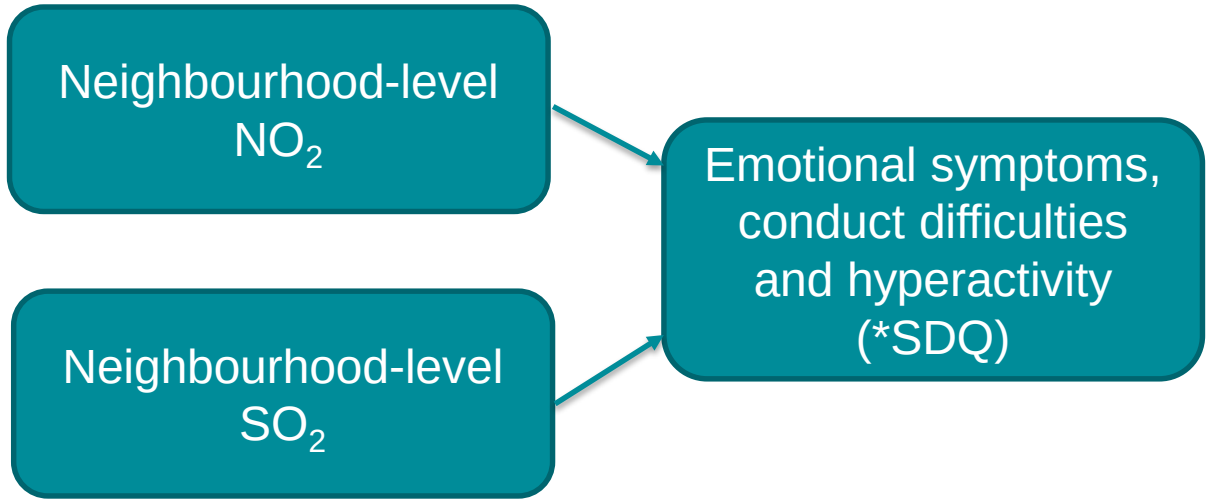
- Used data from sweeps 1 (age 9 months) and 2 (age 3 years)

- Sample: Data from 11,625 children living in England and Wales and with data on the outcome measure

Data on nitrogen dioxide (NO_2) and sulfur dioxide (SO_2) at ward-level linked with MCS

- Multiple Environmental Deprivation Index (MEDIx)
  (Richardson, Mitchell, Shortt, Pearce, & Dawson, 2010; Shortt, Richardson, Mitchell, & Pearce, 2010)
- Mean annual concentrations of pollutants across 1999-2003 linked to sweep 1 (age 9 mos) and sweep 2 (3 yrs)
  1. Deciles across wards
  2. Groups of high, medium and low
  3. High/medium or low at 9 months and 3 years

Relationships examined



*SDQ = Strengths and Difficulties Questionnaire

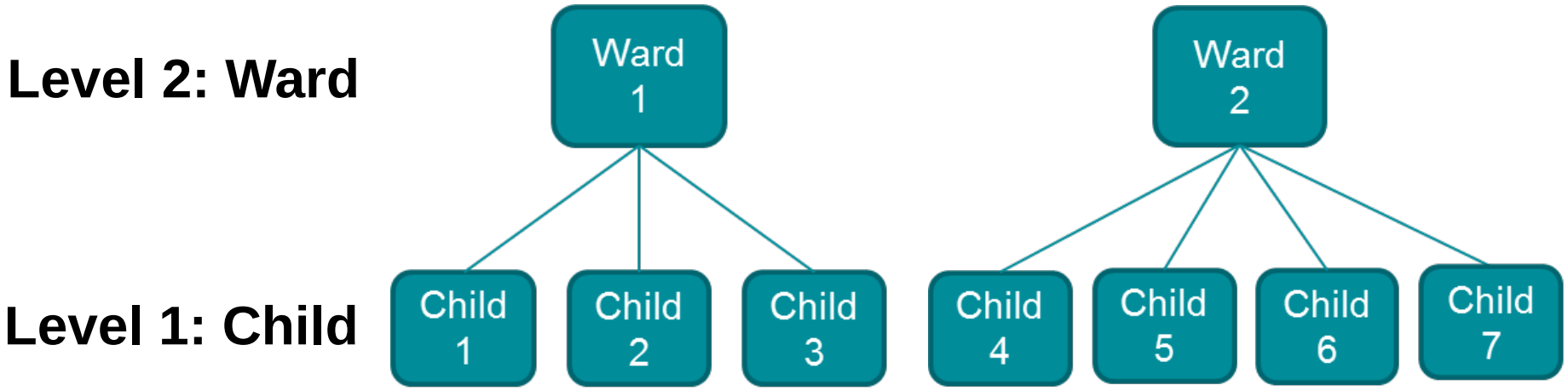
Covariates

Neighbourhood (ward): % of green space, urbanicity, disadvantage

Family: Indoor air quality (secondhand smoke and damp or condensation problem), household income, residential stability, and maternal education, psychological distress and general health

Child: Gender, age, ethnicity and low birth weight

Two-level random intercept model



Findings from fully adjusted models for environmental variables: Air pollution measured in deciles at age 9 months

Environmental factor at age 9 months	Conduct problems	Hyperactivity	Emotional symptoms
NO_2 (deciles) in ward	.03	Not sig	Not sig
Green space (deciles) in ward	.04	Not sig	Not sig
Urban ward	Not sig	Not sig	Not sig
Damp/condensation in home	.16	Not sig	.09
Secondhand smoke in home	.59	.37	.16

Findings from fully adjusted models for environmental variables: Air pollution measured in levels at age 9 months

Environmental factor at age 9 months	Conduct problems	Hyper-activity	Emotional symptoms
NO_2 high level (ref: low level)	Not sig	.26	.17
NO_2 medium level (ref: low level)	Not sig	Not sig	.14
Green space (deciles) in ward	.04	Not sig	Not sig
Urban ward	Not sig	Not sig	Not sig
Damp/condensation in home	.16	Not sig	.09
Secondhand smoke in home	.59	.37	.16

Findings from fully adjusted models for environmental variables: History of exposure at age 9 months and age 3 years

Environmental factor at age 9 months/3 years	Conduct problems	Hyper-activity	Emotional symptoms
NO_2 high/med at both ages (ref: low at both)	Not sig	Not sig	.15
NO_2 med/high at 9 mo. and low at 3 yrs.	Not sig	Not sig	Not sig
NO_2 low at 9 mo. and med/high at 3 yrs.	Not sig	Borderline	Not sig
Green space	.03	Not sig	Not sig
Urban ward	Not sig	Not sig	Not sig
Damp/condensation in home	.23	.16	.11
Secondhand smoke in home	.58	.39	.14

Conclusions

- Postnatal exposure to NO_2 (but not SO_2) may (slightly) increase behavioural and emotional problems in first few years of life.
- Higher levels of NO_2 predicted more emotional symptoms and hyperactivity, but any increase in NO_2 appeared to be somewhat detrimental for conduct problems.
- Indoor air quality – secondhand smoke and damp or condensation - linked with emotional and behavioural problems
- A larger project using finer-grained spatial measures of air pollution and looking across childhood and adolescence will be proposed

Opportunities for cross-cohort work

- Understanding Society
- AVON Longitudinal Study of Parents and Children

Thank you

- Richard Mitchell, Elizabeth Richardson and their colleagues for developing and providing the Multiple Environmental Deprivation Index (MEDIx) air pollutant data that we linked with the MCS for this project.

- David Church at the Centre for Longitudinal Studies for his support in linking these data with the MCS.

MINDMAP

Promoting Mental Wellbeing In The Ageing Urban Population:

Determinants, Policies And Interventions In European Cities

Closer Conference
London, November 2017

Frank J. van Lenthe
Department of Public Health, Erasmus MC Rotterdam
for the MINDMAP consortium

The MINDMAP Consortium

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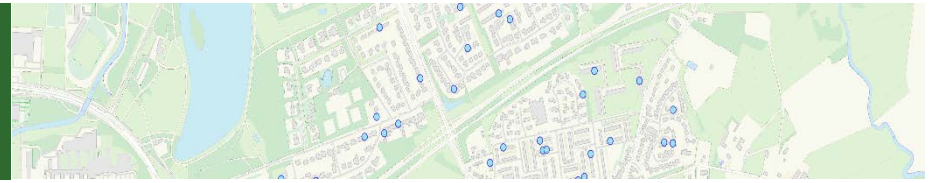
CONTENTS

INTRODUCTION

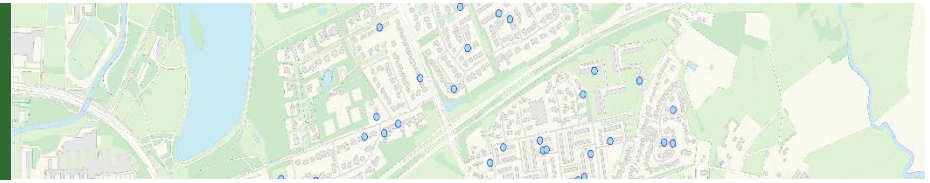
RATIONALE



- The burden of mental health increases substantially, due to population growth and ageing
- More than 70% of Europeans reside in cities
- Urban environments offer opportunities and face challenges for public health interventions

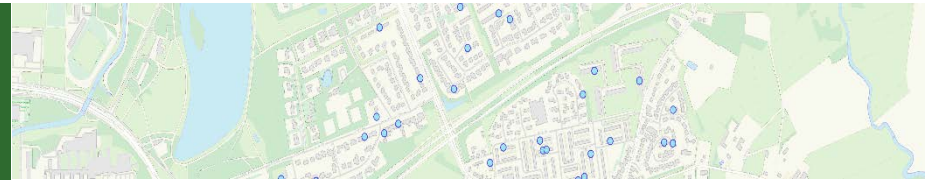
INTRODUCTION

AIMS OF THE PROJECT (1)



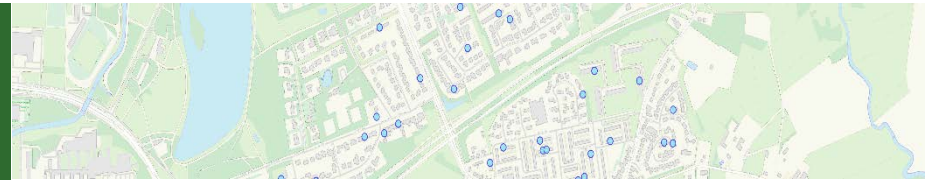
- To assess the impact of the urban environment on mental wellbeing and disorders associated with ageing, and estimate the extent to which exposure to specific urban environmental factors and policies explain differences in ageing-related mental and cognitive disorders both within as well as between European cities.

AIMS OF THE PROJECT (2)



- To assess the causal pathways and interactions between the urban environment and the individual determinants of mental health and cognitive ageing in older adults.

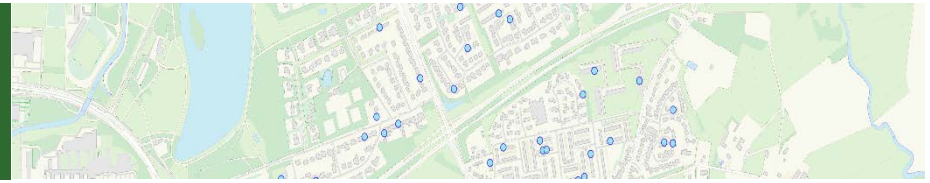
AIMS OF THE PROJECT (3)



- To simulate the effect of prevention and early identification policies specific to urban environments on the trajectories of mental health and cognitive ageing across cities in Europe.

INTRODUCTION

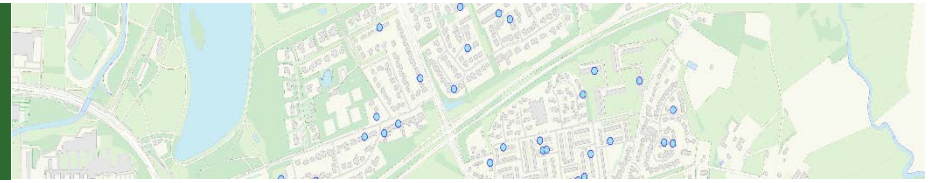
SCIENTIF CHALLENGES



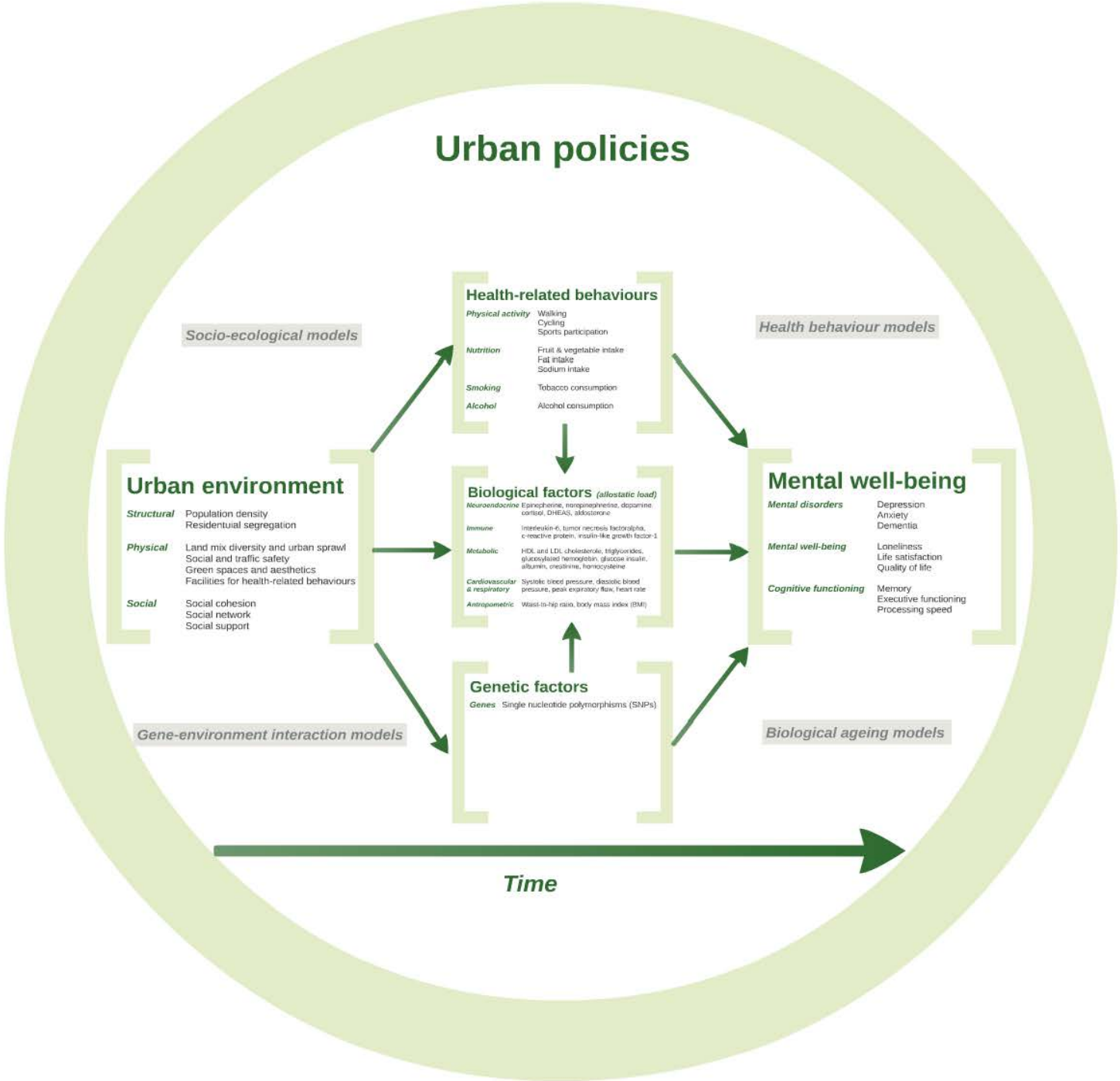
- Single city studies offer little urban environmental variation
- Underlying (causal) mechanisms: a multilevel perspective from society to biology
- Complexity and policy relevance

INTRODUCTION

PROPOSED SOLUTIONS

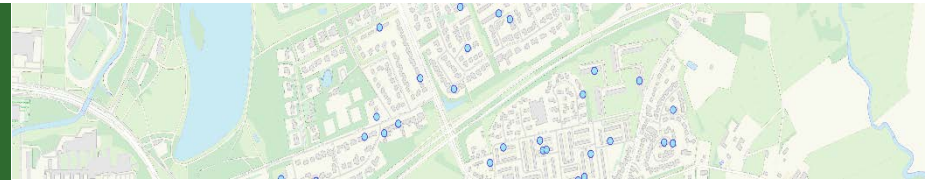


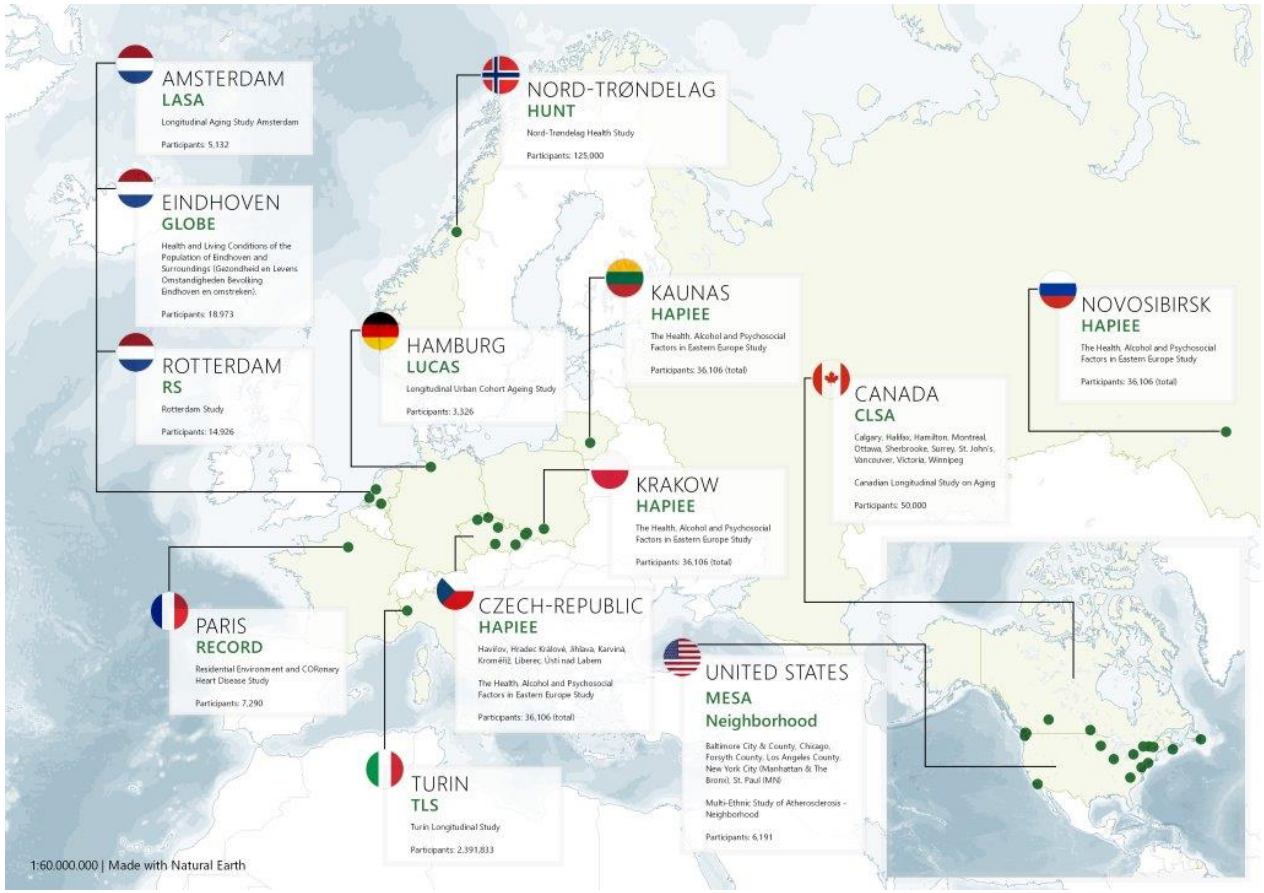
- A conceptual model linking the urban environment to mental health
- A data platform of 10 international harmonized longitudinal urban cohorts of ageing
- Causal impact of urban policies and application of systems (agent-based) models


Urban policies
Socio-ecological models
Health behaviour models
Health-related behaviours
Physical activity Walking
Cycling
Sports participation
Nutrition Fruit & vegetable intake
Fat intake
Sodium intake
Smoking Tobacco consumption
Alcohol Alcohol consumption
Urban environment
Structural Population density
Residentuial segregation
Physical Land mix diversity and urban sprawl
Social and traffic safety
Green spaces and aesthetics
Facilities for health-related behaviours
Social Social cohesion
Social network
Social support
Biological factors (allostatic load)
Neuroendocrine Epinepherine, norepinephrenine, dopamine, cortisol, DHEAS, aldosterone
Immune Interleukin-6, tumor necrosis factoralpha, c-reactive protein, insulin-like growth factor-1
Metabolic HDL and LDL cholesterole, triglycerides, glucosylated hemoglobin, glucose insulin, albumin, creatinine, homocysteine
Cardiovascular & respiratory Systolic bleed pressure, diastolic blood pressure, peak expiratory flow, heart rate
Antropometric Waist-to-hip ratio, body mass index (BMI)
Mental well-being
Mental disorders Depression
Anxiety
Dementia
Mental well-being Loneliness
Life satisfaction
Quality of life
Cognitive functioning Memory
Executive functioning
Processing speed
Genetic factors
Genes Single nucleotide polymorphisms (SNPs)
Gene-environment interaction models
Biological ageing models
Time

APPROACH

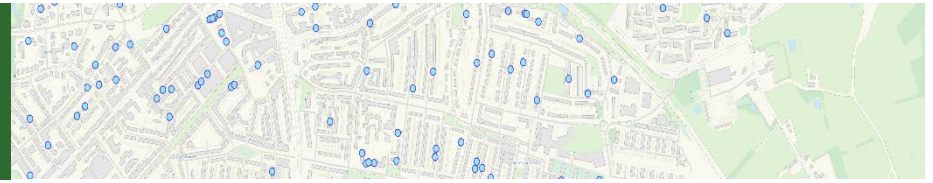
PARTICIPATING COHORTS





APPROACH

DATA HARMONIZATION AND STORAGE



0. Define the research questions, objectives and protocol

1. Assemble information and select studies

a. Document individual study designs, methods and content
b. Select participating studies

2. Define variables and evaluate harmonization potential

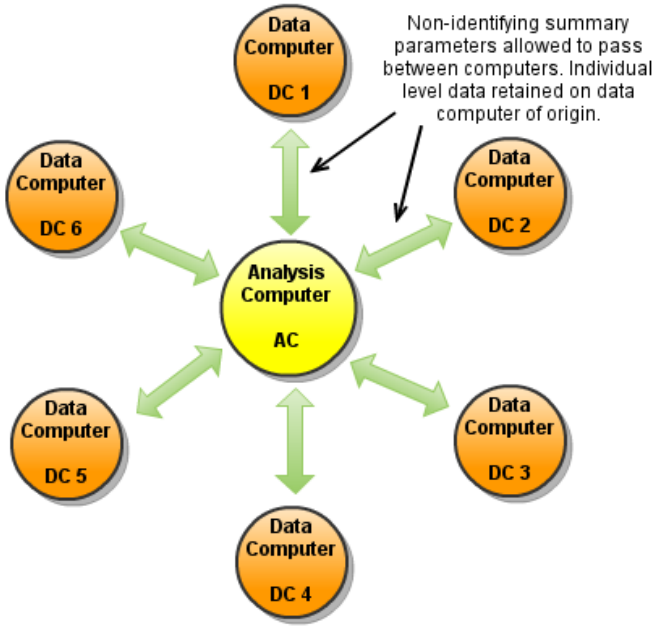
a. Select and define the core variables to be harmonized
b. Determine the potential to create the core variables making use of study-specific data items

3. Process data

a. Ensure access to adequate study-specific data items and establish the overall data processing infrastructure
b. Process study-specific data under a common format to generate the harmonized dataset(s)

4. Estimate quality of the harmonized dataset(s) generated

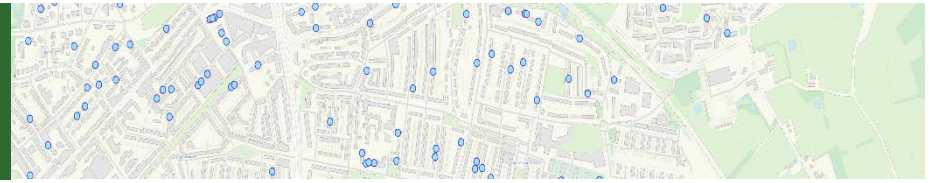
5. Disseminate and preserve final harmonization products



Fortier et al., 2017

APPROACH

URBAN DATA COLLECTION



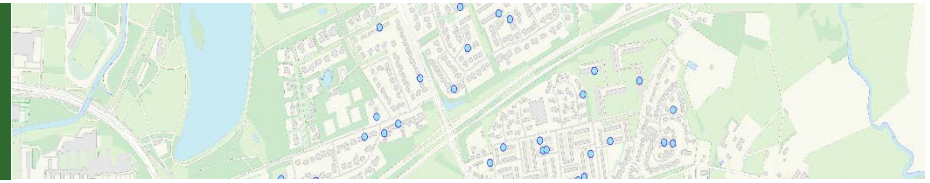
- **INSPIRE: European collaboration on spatial data:**
  - A substantial part of the requested environmental will be available for every European city as part of the INSPIRE directive

- Transportation
- Facilities
- Green
- Safety
- Demographics

Noordzij et al., in progres

APPROACH

RESEARCH THEMES

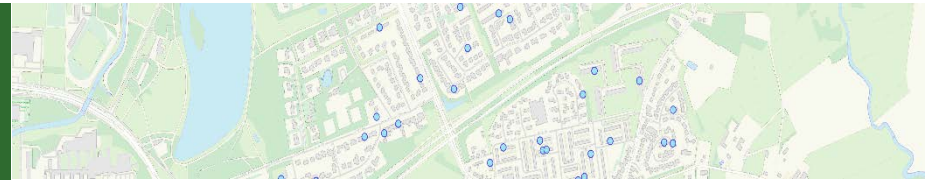


- The association of city and within city-level urban characteristics and (trajectories in) mental well being

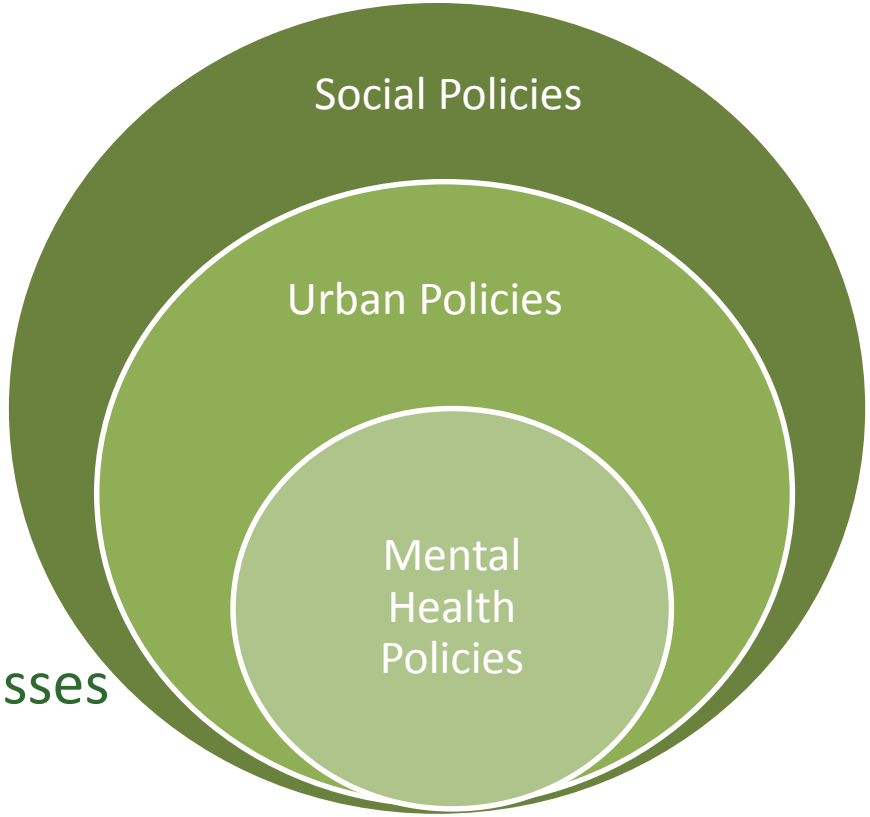
- The mediating role of health behaviors and biomarkers in the association between environmental characteristics and mental well being

APPROACH

POLICY DATABASE



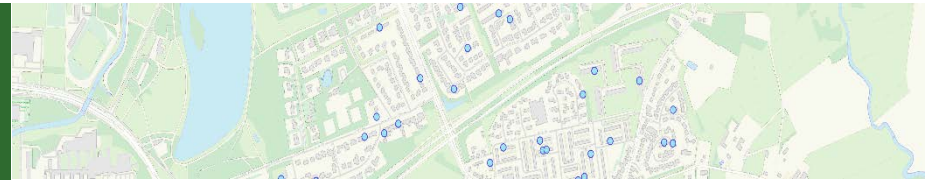
- Employment
- Participation
- Outdoor space
- Transport
- Housing
- Causal inference:
  - IV impact free bus passes



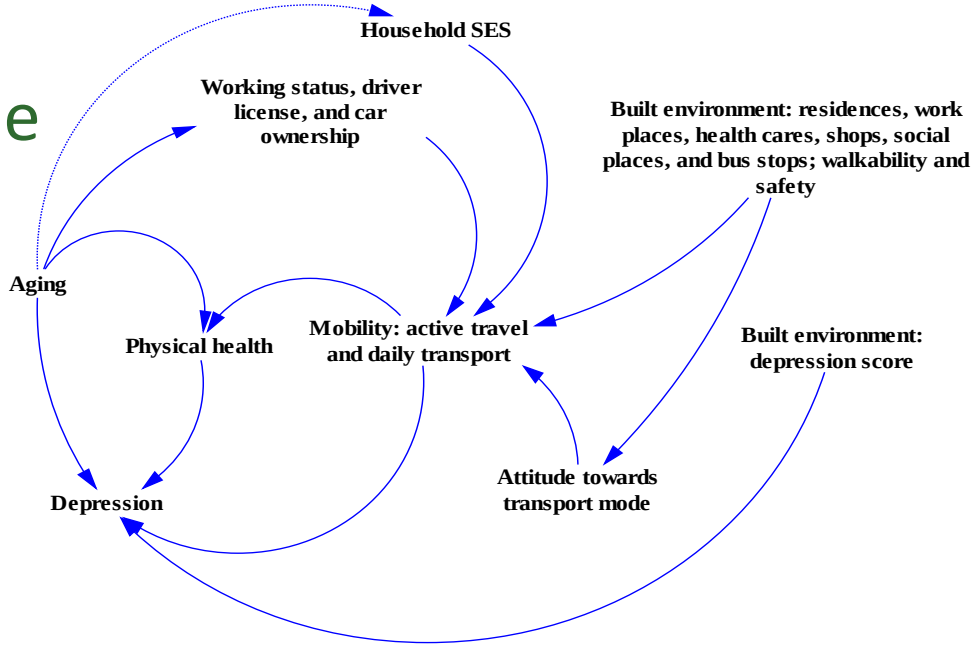
Reinhard et al., submitted

APPROACH

SYSTEMS APPROACH



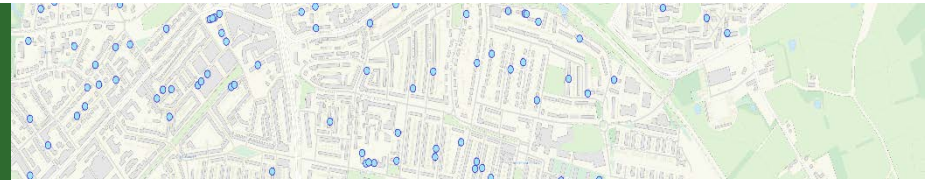
- Walkability and safety
- Bus fare and waiting time
- Adding bus lines and
- Stations



Yang et al., submitted for publication

POLICY RELEVANCE

DISSEMINATION



- **Stakeholder platforms: national and local**

Themenschwerpunkt

Z Gerontol Geriat
DOI 10.1007/s00391-017-1290-7
Received: 9 June 2017
Accepted: 23 June 2017
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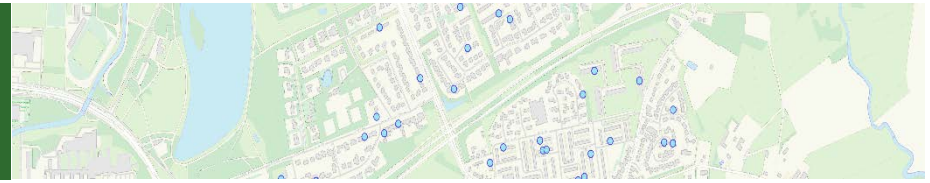
The MINDMAP project: mental well-being in urban environments

Design and first results of a survey on healthcare planning policies, strategies and programmes that address mental health promotion and mental disorder prevention for older people in Europe

FURTHER INFORMATION



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